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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/701,829	COOPER, J. CARL	
	Examiner	Art Unit	
	ALBERT H. CUTLER	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *14 December 2009*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) *15-23* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

1. This office action is responsive to communication filed on December 14, 2009. Claims 1-23 are pending in the application. Claims 15-23 have been withdrawn from consideration. Claims 1-14 have been examined by the Examiner.

Election/Restrictions

2. The election/restriction requirement made by the Examiner on October 14, 2009 is hereby removed in view of Applicant's response.

Response to Arguments

3. Applicant's arguments filed December 14, 2009 have been fully considered but they are not persuasive. The original disclosure does not support the current amendments to claims 1, 2, and 17, as detailed in the rejection under 35 U.S.C. 112 first paragraph outlined below.

4. Applicant's arguments filed July 13, 2009 with respect to claims 1, 2 and 7 have been considered but are moot in view of the new ground(s) of rejection.

Claim Objections

5. Claims 1, 2 and 7 are objected to because of the following informalities: Lack of clarity and precision.

6. Claim 1 twice recites step "iii)". The Examiner believes the second step "iii)" should be changed to step "iv)". Appropriate correction is required.

7. Claim 2 recites "wherein the position sensor to which said image sensor and said display are coupled to operate independently of each other". This recitation does not

conform with proper idiomatic English and thus lacks clarity. Appropriate correction is required.

8. Claim 2 twice recites step "iii)". The Examiner believes the second step "iii)" should be changed to step "iv)". Appropriate correction is required.

9. Claim 2 recites "iii) receives images into **the image transfer buffer**". However, no image transfer buffer has been previously defined in claim 2. It appears that claim 2 should be amended to recite "iii) receives images into the image transfer **memory**". Appropriate correction is required.

10. Claim 7 recites "iii) receives images produced by said **charged** coupled device". It appears that claim 7 should be amended to recite "iii) receives images produced by said **charge** coupled device". Appropriate correction is required.

Claim Rejections - 35 USC § 112

11. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

12. Claims 1, 2 and 7 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

13. Specifically, the limitation of claim 1 reciting "said image sensor, said display, said image sensor orientation sensor, said display orientation sensor, said image

transfer memory and said image manipulator are co-located within a single enclosure", the limitation of claim 2 reciting "said image sensor, said display, said position sensor, said image transfer memory and said image manipulator are co-located within a single enclosure", and the limitation of claim 7 reciting "said charge coupled device image sensor, said orientation sensor, said display device, and said image manipulator are co-located within a single enclosure" are not supported by the original disclosure, and thus constitute new matter.

14. Regarding support for these limitations, Applicant asserts in the reply filed December 14, 2009 that, specifically, page 12, lines 26-31 describe an embodiment incorporating "combined image sensor and display devices.., which devices may sense, display, store, send or receive images in any combination." Page 13, lines 1-5 further note, "the inventor envisions the use of the invention in video cell phones where the phone contains an angular sensor, image sensor, display, memory and associated support circuitry, wherein images which are sent from the phone are orientation corrected in response to the tilt of the phone when the image is acquired, and images received by the phone for display are oriented in response to the tilt of the phone when displayed." These portions of the specification clearly describe embodiments wherein the aforementioned components are co-located within a single enclosure. Particularly, use of the invention in a video cell phone necessarily requires that all components be located within the phone itself, which is inherently a singular enclosure.

15. The Examiner respectfully disagrees. MPEP § 2163.05 (II) recites "The introduction of claim changes which involve narrowing the claims by introducing

elements or limitations which are not supported by the as-filed disclosure is a violation of the written description requirement of 35 U.S.C. 112, first paragraph. See, e.g., Fujikawa v. Wattanasin, 93 F.3d 1559, 1571, 39 USPQ2d 1895, 1905 (Fed. Cir. 1996) (**a "laundry list" disclosure of every possible moiety does not constitute a written description of every species in a genus because it would not "reasonably lead" those skilled in the art to any particular species**)". Page 12, line 28 through page 13, line 1 of Applicant's original specification recites "combined image sensor and display devices may be configured, which devices may sense, display, store, send or receive images in any combination while providing reorientation of images as necessary to ensure appropriately reoriented images are presented to the viewer or sent to other viewers as desired". Although this recitation details that there may be different combined image sensor and display devices, it does not provide sufficient support for the specific limitations found in the amended claims.

16. MPEP § 2163.05 (II) further refers to In re Ruschig, 379 F.2d 990, 995, 154 USPQ 118, 123 (CCPA 1967) ("If n-propylamine had been used in making the compound instead of n-butylamine, the compound of claim 13 would have resulted. Appellants submit to us, as they did to the board, an imaginary specific example patterned on specific example 6 by which the above butyl compound is made so that we can see what a simple change would have resulted in a specific supporting disclosure being present in the present specification. The trouble is that there is no such disclosure, easy though it is to imagine it."). There is no specific supporting disclosure in Applicant's original disclosure for the currently amended claims.

17. Regarding Applicant's referral to page 13, lines 1-5 of the specification, it is indeed seen that the inventor has envisioned the use of the invention in video cell phones. However, once again, this section does not provide sufficient support for the specific limitations found in the amended claims. For instance, page 13, lines 1-5 details that images are sent from the phone in the correct orientation, and that images received by the phone are correctly oriented for display. There is no support in this cited section of the specification, or any other section for that matter, for a cell phone (i.e. single enclosure) with **both** an image sensor orientation sensor and display orientation sensor (i.e. two orientation sensors), or a single image manipulator that receives and orients images based on **both** the sensed image sensor orientation and the sensed display orientation as disclosed in claim 1. One having ordinary skill in the art would not have envisioned the specific embodiment recited in the amended claims based on the provided original disclosure. Furthermore, page 10, lines 24-28 of the original specification recites, "One such mobile display with which the invention finds application is cellular phones with video displays. For example, such phones may utilize the invention as part of the acquiring of the image, including storing and transmitting the image, **or** may utilize the invention as part of the displaying of an image **acquired from another cell phone**." It appears that Applicant's invention can be applied to two separate cell phones, and that an individual cell phone can either re-orient an image for storage or transmission, **or** re-orient a received image for display. Once again, the Examiner upholds that there is no disclosure of a single cell phone that both re-orients an image based on the image sensor orientation of that cell phone, and

additionally re-orients the image based on the orientation of the display of that cell phone.

18. Regarding amended claim 1, the original disclosure does not have sufficient support for a single enclosure including both an image sensor orientation sensor and a display orientation sensor, or a single image manipulator that adjusts the image orientation based on both a received image sensor orientation and received display orientation of the single enclosure. Therefore, the added limitations to claim 1 constitute new matter.

19. Regarding amended claim 2, the original disclosure does not have sufficient support for a single enclosure including a single position sensor which senses both an image sensor orientation and a display orientation, or a single image manipulator that adjusts the image orientation based on both a received image sensor orientation and received display orientation of the single enclosure. Therefore, the added limitations to claim 2 constitute new matter.

20. Regarding amended claim 7, the original disclosure does not have sufficient support for a single enclosure including a display and an image sensor, wherein the orientations of both the image sensor and the display of the single enclosure are received, and wherein at least one image manipulator adjusts the image orientation based on both a received image sensor orientation and received display orientation of the single enclosure. Therefore, the added limitations to claim 7 constitute new matter.

21. Lastly, as further evidence that a single enclosure containing both the claimed image sensor and claimed display lacks support, the cumulative amendments submitted

September 22, 2008 and November 6, 2008 were used to overcome the rejection of March 19, 2008 by clarifying that the image sensor and display are respectively contained in separate, independently operating devices.

22. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

23. Claim 7 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

24. Claim 7 recites "said display device operates independently of said digital camera" and further recites that said display device is "co-located within a single enclosure" with other parts of the digital camera. Therefore, it is unclear whether the digital camera and display are separate, independently operating devices, or part of a single device having a single enclosure. Therefore, claim 7 is deemed indefinite.

Claim Rejections - 35 USC § 103

25. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

26. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

27. Claims 1-9, 13(1), 13(2) and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas (US 6,781,623) in view of Hinckley et al. (US 7,289,102).

Consider claim 1, Thomas teaches:

A digital imaging system (figures 5 and 6) comprising:

a. an image sensor ("CCD", 16, figure 6, column 4, lines 38-41) and a separate display (display, 12);

b. an image sensor orientation sensor ("sensor", 20, figure 6, column 4, lines 42-45) being linked to the image sensor (The image sensor orientation sensor (20) determines the orientation of the hand-held terminal relative to its environment, column 4, lines 42-45. The image sensor orientation sensor (20) is linked to the image sensor (16) through the DSP (34), as shown in figure 6.);

d. an image transfer memory (frame memory, 38, figure 6, column 5, lines 15-22)

e. an image manipulator ("Digital Signal Processor", 34, figure 6, column 5 lines 18-24) which:

i) receives image sensor orientation (The DSP (34) applies a transform to the image data based on a received output from the image sensor orientation sensor (20), column 5, lines 18-26.);

iii) receives image into the image transfer memory (The image transfer memory (38) receives the image from the CCD (16), column 5, lines 15-16.);

iii) adjusts the image orientation (The image manipulator (34) applies a rotational transform to the image, column 5, lines 18-26, figure 7, column 6, lines 33-46.),

wherein said image sensor (16), said display (12), said image sensor orientation sensor (20), said image transfer memory (38) and said image manipulator (34) are co-located within a single enclosure (All are located in the video telephone shown in figures 5 and 6, column 3, line 64 through column 4, line 2.).

However, Thomas does not explicitly teach of a display orientation sensor, or of receiving the display orientation and adjusting the image orientation based on the display orientation.

Hinckley et al. is similar to Thomas in that Hinckley et al. teaches of a portable device (figure 3) having a display (304) and an orientation sensor (308, column 4, lines 16-38). Hinckley et al. teach that the portable device receives image data from an outside source (column 2, lines 31-37, column 2, line 61 through column 3, line 3, column 9, lines 24-33).

However, in addition to the teachings of Thomas, Hinckley et al. teach the display (304) being capable of rotating through at least one angle that is independent from the rotation of the image sensor (See figures 10 and 11, column 9, lines 24-33. There is no image sensor in the device taught by Hinckley et al. Hinckley et al. simply receives image information from external sources.), of a display orientation sensor (304, column 3, lines 25-34, column 4, line 30 through column 5, line 3), and of receiving the display orientation and adjusting the image orientation based on the display orientation (Column 9, line 18 through column 10, line 62).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to have the single enclosure of the digital imaging system taught by Thomas include a display orientation sensor by which the display orientation is sensed and corrected for as taught by Hinckley et al. for the benefit of expanding the functionality of the digital camera system without requiring the user to perform any additional actions(Hinckley et al., column 1, lines 40-45).

Consider claim 3, and as applied to claim 1 above, Thomas further teaches that the digital imaging system is chosen from the group consisting of still cameras and video cameras (The digital imaging system can be either a still camera of video camera, column 5, lines 27-45).

Consider claim 4, and as applied to claim 1 above, Thomas further teaches that the image sensor ("CCD", 16, figure 6) is a charge couple device array (column 4, lines 38-41).

Consider claim 5, and as applied to claim 1 above, Thomas further teaches that the image sensor orientation sensor is chosen from the group consisting of mechanical gyroscope sensors (Thomas teaches that a mechanical gyroscope sensor can be used to apply a rotational transform and maintain an orientation which has been manually aligned, column 7, line 35 through column 8, line 19.)

Consider claim 6, and as applied to claim 1 above, Thomas further teaches that the image manipulator comprises an image rotation system (The image manipulator (34) applies a rotational transform to the image, column 5, lines 18-26, figure 7, column 6, lines 33-46. One way to apply a rotational transform is through baseline orientation coordinates, column 5, line 62 through column 6, line 5.).

Consider claim 13, and as applied to claim 1 above, Thomas teaches of using a mechanical gyroscope orientation sensor capable of sensing rotations in two dimensions (See column 8, lines 4-19. A mechanical gyroscope can be used to correct the alignment of the video camera. The alignment is corrected in two dimensions, column 4, lines 42-62, figures 2-4.).

Consider claim 2, Thomas teaches:

A digital imaging system (figures 5 and 6) comprising:

a. an image sensor for sensing an image subject and to capture a presentation of the image ("CCD", 16, figure 6, column 4, lines 38-41);

a separate display device (display, 12) for displaying said presentation of said image (column 4, lines 17-62, column 7, lines 61-67);

a position sensor ("sensor", 20, figure 6, column 4, lines 42-45), wherein the position sensor to which said image sensor and said display are coupled to operates independently of each other ("The sensor (20) is operable to determine the orientation of the hand-held terminal relative to its environment. More specifically the sensor is

configured to determine a rotational angle between the vertical alignment axis (i.e. changed orientation axis) of the hand-held device and a reference alignment axis (i.e. base line orientation coordinates) defined by a real space orientation.", column 4, lines 42-48. The image sensor and display are coupled to the hand-held terminal and thus to the position sensor, figures 5 and 6.);

b. an image transfer memory (frame memory, 38, figure 6, column 5, lines 15-22);

c. an image manipulator ("Digital Signal Processor", 34, figure 6, column 5 lines 18-24), which:

i) receives image sensor orientation from the position sensor (The DSP (34) applies a transform to the image data based on a received output from the position sensor (20), column 5, lines 18-26.);

iii) receives images into the image transfer memory (The image transfer memory (38) receives the image from the CCD (16), column 5, lines 15-16.);

iii) adjusts the image orientation in relation to the orientation of the position sensor (The image manipulator (34) applies a rotational transform to the image based on the position sensor (20) output, column 5, lines 18-26, figure 7, column 6, lines 33-46. One way to apply a rotational transform is through baseline orientation coordinates, column 5, line 62 through column 6, line 5.),

wherein said image sensor (16), said display (12), said position sensor (20), said image transfer memory (38) and said image manipulator (34) are co-located within a

single enclosure (All are located in the video telephone shown in figures 5 and 6, column 3, line 64 through column 4, line 2.).

However, Thomas does not explicitly teach that the image manipulator receives the display orientation from the position sensor.

Hinckley et al. are similar to Thomas in that Hinckley et al. teach of a portable device (figure 3) having a display (304) and an orientation sensor (308, column 4, lines 16-38). Hinckley et al. teach that the portable device receives image data from an outside source (column 2, lines 31-37, column 2, line 61 through column 3, line 3, column 9, lines 24-33).

However, in addition to the teachings of Thomas, Hinckley et al. teach the display (304) being capable of rotating through at least one angle that is independent from the rotation of the image sensor (See figures 10 and 11, column 9, lines 24-33. There is no image sensor in the device taught by Hinckley et al. Hinckley et al. simply receives image information from external sources.), of a display orientation sensor (304, column 3, lines 25-34, column 4, line 30 through column 5, line 3) configured to sense changes in the orientation of said display device with respect to a second display device base line coordinates (column 9, lines 34-47), and of receiving the display orientation and adjusting the image orientation based on the display orientation (Column 9, line 18 through column 10, line 62).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to have the image manipulator taught by Thomas receive the display orientation from the position sensor and adjust the displayed image accordingly

as taught by Hinckley et al. for the benefit of expanding the functionality of the digital camera system without requiring the user to perform any additional actions (Hinckley et al., column 1, lines 40-45).

Consider claim 13, and as applied to claim 2 above, Thomas teaches of using a mechanical gyroscope orientation sensor capable of sensing rotations in two dimensions (See column 8, lines 4-19. A mechanical gyroscope can be used to correct the alignment of the video camera. The alignment is corrected in two dimensions, column 4, lines 42-62, figures 2-4).

Consider claim 7, Thomas teaches:

A digital camera (figures 5 and 6) comprising:

a. a charge coupled device image sensor ("CCD", 16, figure 6, is a charge couple device array, column 4, lines 38-41);

b. an orientation sensor that detects orientation of said charge coupled device image sensor relative to gravity (Thomas teaches of an orientation sensor(20) that may be a magneto-inductive sensor, column 4, line 63. However Thomas further teaches in an alternate embodiment that a gyroscope can be used to sense the orientation of the camera, column 7, line 35 through column 8, line 19. The orientation can be relative to gravity, column 5, lines 4-9.);

c. a display device (display, 12) capable of displaying the image produced by said charge coupled device image sensor, wherein said display device operates independently of said CCD (column 4, lines 17-62, column 7, lines 61-67);

d. at least one image manipulator ("Digital Signal Processor", 34, figure 6, column 5 lines 18-24), which:

i) receives said charge coupled device image sensor orientation (The DSP (34) applies a transform to the image data based on a received output from the position sensor (20), column 5, lines 18-26.);

iii) receives images produced by said charge coupled device image sensor into the image transfer memory (The image transfer memory (38) receives the image from the CCD (16), column 5, lines 15-16.);

iv) rotates the image in the image transfer memory (38) to reconcile differences relative to gravity between said orientation of said charge coupled device and the image displayed (The image manipulator(34) applies a rotational transform to the image, column 5, lines 18-26, figure 7, column 6, lines 33-46.),

wherein said image sensor (16), said display (12), said orientation sensor (20), said image transfer memory (38) and said image manipulator (34) are co-located within a single enclosure (All are located in the video telephone shown in figures 5 and 6, column 3, line 64 through column 4, line 2.).

However, Thomas does not explicitly teach receiving the orientation of the display device relative to gravity and rotating the received image based on the sensed display orientation.

Hinckley et al. are similar to Thomas in that Hinckley et al. teach of a portable device (figure 3) having a display (304) and an orientation sensor (308, column 4, lines 16-38). Hinckley et al. teach that the portable device receives image data from an outside source (column 2, lines 31-37, column 2, line 61 through column 3, line 3, column 9, lines 24-33).

However, in addition to the teachings of Thomas, Hinckley et al. teach of a display orientation sensor (304, column 3, lines 25-34, column 4, line 30 through column 5, line 3) configured to sense changes in the orientation of said display device with respect to gravity (column 4, lines 35-38, column 9, lines 34-47), and of receiving the display orientation and adjusting the image orientation based on the display orientation (Column 9, line 18 through column 10, line 62).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to sense display orientation and correct displayed images based on the sensed display orientation as taught by Hinckley et al. in the digital camera taught by Thomas for the benefit of expanding the functionality of the digital camera system without requiring the user to perform any additional actions (Hinckley et al., column 1, lines 40-45).

Consider claim 8, and as applied to claim 7 above, Thomas further teaches that the digital camera is chosen from the group consisting of still cameras and video cameras (The digital imaging system could be either a still camera of video camera, column 5, lines 27-45).

Consider claim 9, and as applied to claim 7 above, Thomas further teaches that the gyroscope orientation sensor is chosen from the group consisting of mechanical gyroscope sensors (Thomas teaches that a mechanical gyroscope sensor can be used to apply a rotational transform and maintain an orientation which has been manually aligned, column 7, line 35 through column 8, line 19.).

Consider claim 14, and as applied to claim 7 above, Thomas teaches of using a mechanical gyroscope orientation sensor capable of sensing rotations in two dimensions as the orientation sensor that detects the orientation of said charge coupled device (See column 8, lines 4-19. A mechanical gyroscope can be used to correct the alignment of the video camera. The alignment is corrected in two dimensions, column 4, lines 42-62, figures 2-4).

28. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas in view of Hinckley et al. as applied to claim 7 above, and further in view of Harrison (US 6,597,384).

Consider claim 10, and as applied to claim 7 above, Thomas does not explicitly teach detecting the orientation of a display.

Hinckley et al. teach of using touch sensors, but do not explicitly teach manually entering orientation information.

Harrison is similar Hinckley et al. in that Harrison teaches a mobile device (figures 1a and 1b) with a display and touch sensors (100, 102, 104, 106).

However, in addition to the teachings of Thomas and Hinckley et al., Harrison teaches that the touch sensors are used to manually enter the display orientation (figure 3).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to manually enter display orientation information as taught by Harrison in the digital camera taught by the combination of Thomas and Hinckley et al. for the benefit that the user can obtain the correct image orientation when the displayed image orientation is incorrect (Harrison, column 2, lines 38-39).

29. Claims 11(1), 11(2) and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Thomas (US 6,781,623) in view of Hinckley et al. (US 7,289,102) as applied to claims 1, 2 and 7 above, and further in view of Ahisha (US 2005/0007477) and Riconda et al. (US 2002/013093).

Consider claim 11, and as applied to claim 1 above, Thomas teaches that the sensor provides two-dimensional information (column 4, lines 42-59).

Hinckley et al. teach that the orientation sensors produce three dimensional orientation information (column 4, line 30 through column 5, line 3), and that said orientation information is used to correct perspective distortions of the image being viewed (column 9, line 34 through column 10, line 36).

However, the combination of Thomas and Hinckley et al. does not explicitly teach using the three dimensional orientation information to correct for keystone, barrel and other distortions that result when the image sensor is located off of the perpendicular axis with respect to the plane of the image being sensed.

Ahisha is similar to Thomas in that Ahisha teaches of a camera containing an image sensor (30) and an image processor (40, figure 1).

However, in addition to the combined teachings of Thomas and Hinckley et al., Akisha teaches using coordinate information to correct for barrel and other (i.e. pincushion) distortions (see figure 2) that result when the image sensor is located off of the perpendicular axis with respect to the plane of the image being sensed (See paragraphs 0021-0029, especially paragraphs 0024, and 0026-0029).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to use the coordinate information taught by the combination of Thomas and Hinckley et al. to correct for barrel and pincushion distortion as taught by Akisha for the benefit of improving perceived image quality.

The combination of Thomas, Hinckley et al. and Akisha does not explicitly teach correcting for keystone distortion.

Riconda et al. similarly teach of a camera system for capturing and displaying images (see paragraphs 0062-0072, 0075).

However, in addition to the combined teachings of Thomas, Hinckley et al. and Akisha, Riconda et al. teaches using coordinate information to correct for keystone distortions that result when the image sensor is located off of the perpendicular axis with

respect to the plane of the image being sensed (paragraphs 0092-0103, figures 12A-12E, especially paragraph 0094).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to use the coordinate information taught by the combination of Thomas, Hinckley et al. and Akisha to correct for keystone distortion as taught by Riconda et al. for the benefit of improving perceived image quality.

Consider claim 11, and as applied to claim 2 above, Thomas teaches that the sensor provides two-dimensional information (column 4, lines 42-59).

Hinckley et al. teach that the orientation sensors produce three dimensional orientation information (column 4, line 30 through column 5, line 3), and that said orientation information is used to correct perspective distortions of the image being viewed (column 9, line 34 through column 10, line 36).

However, the combination of Thomas and Hinckley et al. does not explicitly teach using the three dimensional orientation information to correct for keystone, barrel and other distortions that result when the image sensor is located off of the perpendicular axis with respect to the plane of the image being sensed.

Ahisha is similar to Thomas in that Ahisha teaches of a camera containing an image sensor (30) and an image processor (40, figure 1).

However, in addition to the combined teachings of Thomas and Hinckley et al., Akisha teaches using coordinate information to correct for barrel and other (i.e. pincushion) distortions (see figure 2) that result when the image sensor is located off of

the perpendicular axis with respect to the plane of the image being sensed (See paragraphs 0021-0029, especially paragraphs 0024, and 0026-0029).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to use the coordinate information taught by the combination of Thomas and Hinckley et al. to correct for barrel and pincushion distortion as taught by Akisha for the benefit of improving perceived image quality.

The combination of Thomas, Hinckley et al. and Akisha does not explicitly teach correcting for keystone distortion.

Riconda et al. similarly teach of a camera system for capturing and displaying images (see paragraphs 0062-0072, 0075).

However, in addition to the combined teachings of Thomas, Hinckley et al. and Akisha, Riconda et al. teaches using coordinate information to correct for keystone distortions that result when the image sensor is located off of the perpendicular axis with respect to the plane of the image being sensed (paragraphs 0092-0103, figures 12A-12E, especially paragraph 0094).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to use the coordinate information taught by the combination of Thomas, Hinckley et al. and Akisha to correct for keystone distortion as taught by Riconda et al. for the benefit of improving perceived image quality.

Consider claim 12, and as applied to claim 7 above, Thomas teaches that the sensor provides two-dimensional information (column 4, lines 42-59).

Hinckley et al. teach that the orientation sensors produce three dimensional orientation information (column 4, line 30 through column 5, line 3), and that said orientation information is used to correct perspective distortions of the image being viewed (column 9, line 34 through column 10, line 36). It would have been obvious to a person having ordinary skill in the art at the time of the invention to replace the two-dimensional orientation sensor taught by Thomas with the three-dimensional orientation sensor taught by Hinckley et al. for the benefit of obtaining more precise and detailed image orientation information.

However, the combination of Thomas and Hinckley et al. does not explicitly teach using the three dimensional orientation information to correct for keystone, barrel and other distortions that result when the image sensor is located off of the perpendicular axis with respect to the plane of the image being sensed.

Ahisha is similar to Thomas in that Ahisha teaches of a camera containing an image sensor (30) and an image processor (40, figure 1).

However, in addition to the combined teachings of Thomas and Hinckley et al., Akisha teaches using coordinate information to correct for barrel and other (i.e. pincushion) distortions (see figure 2) that result when the image sensor is located off of the perpendicular axis with respect to the plane of the image being sensed (See paragraphs 0021-0029, especially paragraphs 0024, and 0026-0029).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to use the coordinate information taught by the combination

of Thomas and Hinckley et al. to correct for barrel and pincushion distortion as taught by Akisha for the benefit of improving perceived image quality.

The combination of Thomas, Hinckley et al. and Akisha does not explicitly teach correcting for keystone distortion.

Riconda et al. similarly teach of a camera system for capturing and displaying images (see paragraphs 0062-0072, 0075).

However, in addition to the combined teachings of Thomas, Hinckley et al. and Akisha, Riconda et al. teaches using coordinate information to correct for keystone distortions that result when the image sensor is located off of the perpendicular axis with respect to the plane of the image being sensed (paragraphs 0092-0103, figures 12A-12E, especially paragraph 0094).

Therefore, it would have been obvious to a person having ordinary skill in the art at the time of the invention to use the coordinate information taught by the combination of Thomas, Hinckley et al. and Akisha to correct for keystone distortion as taught by Riconda et al. for the benefit of improving perceived image quality.

Conclusion

30. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ALBERT H. CUTLER whose telephone number is (571)270-1460. The examiner can normally be reached on Mon-Thu (9:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Sinh Tran can be reached on (571) 272-7564. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Sinh Tran/
Supervisory Patent Examiner, Art Unit 2622

AC